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Job No.: CTCE/BBMP/W.No.06/MBH/CUBE/2013-14

16.08.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. M.B. Hombal,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	: AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Sample ID	: Drain Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.07.2014	16.08.2014	8.153	478.3	21.26
2	19.07.2014	16.08.2014	8.259	492.6	21.89
3	19.07.2014	16.08.2014	8.335	516.3	22.95

Note:

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Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{20}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.07.2014	16.08.2014	8.289	482.3	21.44
2	19.07.2014	16.08.2014	8.345	502.3	22.32
3	19.07.2014	16.08.2014	8.415	519.6	23.09

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Job No.: CTCE/BBMP/W.No.06/MBH/WMM/AIV/2014-15

15.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. M.B. Hombal,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	15.07.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	20.63	20.84	
	100* (W_2/W_1)%			20.74

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.06/MBH/WMM/S-T/2014-15 15.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. M.B. Hombal,** Contractor, Bangalore.
Name of Work	Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	15.07.2014

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Result : Flakiness Index = **12.32%**

Elongation Index = **13.98%**

Result : Combined Flakiness & Elongation index **26.30%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.06/MBH/SDBC/AIV/2014-15 23.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. M.B. Hombal,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	23.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	90	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.88	22.96	22.92

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.06/MBH/SDBC/Shape_T/2014-15 : 23.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. M.B. Hombal,** Contractor, Bangalore.
Name of Work	: Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	: AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 23.07.2014

Result : Flakiness Index = **11.89%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **25.14%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.06/MBH/SDBC/Stripping/2014-15 23.07.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. M.B. Hombal,** Contractor, Bangalore.
Name of the work	Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	23.07.2014

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

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Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.06/MBH/SDBC/Sp_Wa/2014-15

23.07.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. M.B. Hombal,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains at Thanisandra Village in Ward No.06 Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	AEE/BTP/(WO)/36/2014-15 Dated: 15.07.2014
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	23.07.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2024	2026	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1267	1269	1271	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2017	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	749	748	744	
6	Weight of oven dried aggregate	W_4 g	2000	2000	2006	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.670	2.674	2.696	2.680
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.729	2.736	2.729	2.731
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.80%	0.85%	0.45%	0.70%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com